capacitance C is proportional to the quantity $1/(LC)^{1/2}$. The inductance of an inductor employing a magnetic core is known in the art to be generally proportional, in turn, to the effective permeability of the magnetic core. As a result, an inductor using a constant permeability core has a constant inductance, making it far easier to analyze and employ than inductors having more complicated, frequency-dependent magnetic characteristics. The latter inductors are also likely to produce unpredictable phase shift effects on signals passing through the inductor and its associated filter circuitry. Moreover, the power loss of the core of the present inductor is low. As a result, any filter circuit incorporating the inductor is more efficient and has a higher quality factor "Q" than circuits employing more lossy devices. A high Q is beneficial in a filter, giving it a resonance that is narrower in frequency.

Previous workers seeking cores having a substantially constant permeability have resorted to powder (dust) based cores, wherein a powder of magnetic material is held, e.g. by a non-metallic binder, in a desired geometrical form. While suitable preparation of such cores does provide a relatively flat curve of permeability versus applied field, they frequently are found to have other drawbacks, notably including the effects of the stress used to compact them into a shape and incorporate a suitable binder that is required to give the core sufficient mechanical robustness for handling and use. The present core, on the other hand, is prepared without the costly and difficult step of preparing powder and compacting and binding it in the desired shape. Instead, amorphous metal material in strip or ribbon form is directly wound into cores and suitably heat treated to provide the desired magnetic properties without the additional processing required for a powder core.

Claims 1, 4 – 5, 7 – 8, and 11 were rejected under 35 USC 103(a) as being unpatentable over US Patent 6,594,157 to Yoshida et al., which discloses a magnetic powder core comprising a molded article of a mixture of a glassy alloy powder and an insulating material.

The Examiner has indicated that Yoshida et al. discloses a core structure for an induction device, pointing to Fig. 10 and paragraph 3 of the office action mailed 9/2/03. Fig. 10 provides a graph of the permeability of two magnetic power cores comprising $Fe_{70}Al_7P_{9.65}B_{8.05}Si_3$ powder and insulating material, the cores having been subjected to different treatment conditions. The Examiner has also stated that Yoshida et al. discloses the instant claimed invention except for the core structure being formed of ribbon.

The Examiner has alleged that it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the Fe-base powder of Yoshida et al. into a ribbon before forming the core structure for the purpose of facilitating manufacture. Applicant respectfully submits that far from disclosing or suggesting the modification proposed by the Examiner, Yoshida et al. in fact teaches away from any core containing amorphous metal in ribbon form, including the core of applicants' claimed filter. At col. 1, lines 24-25, Yoshida et al. state that "...amorphous-alloy-tape-wound cores provided with gaps have been proposed." Such cores are used conventionally: "Thus, conventional low-pass filters use amorphous magnetic cores provided with gaps, ferrite cores provided with gaps, or carbonyl iron gap-free magnetic power cores" (col. 2, lines 3-4). Significantly, the patentees teach away from such cores:

> "However, in filters using amorphous magnetic cores provided with gaps or ferrite cores provided with gaps, leakage magnetic fields from the gaps may adversely affect peripheral elements and circuits, resulting in decreased stability in the entire circuits including the filters and generation of noise. Moreover, in these filters, the amplitude permeability varies with changes in the magnetic field and exhibits a large rate of change. When a pulsed current causing a large change in magnetic field is smoothed, the waveform will be significantly distorted. (col. 2, lines 7-16).

Significantly, Yoshida et al. also teaches that the powder used in forming the core may be obtained by pulverizing a tape (i.e., a ribbon) of glassy alloy having the requisite composition, texture, and properties (col. 11, lines 63-66). Applicants respectfully submit that one of ordinary skill in the art would have no motivation to form any magnetic powder into a ribbon in view of such teaching. Yoshida et al. also fails to suggest any process by which such a formation of ribbon could be accomplished. It is submitted that one of ordinary skill, if required to form such powder into ribbon, would understand that the powder would have to be remelted and re-cast into ribbon using a known ribbon-casting method. It is submitted that any such process would require a substantial reconstruction and redesign of the process taught by Yoshida et al., negating any finding of obviousness of the invention recited by claims 1, 4-5, 7-8, and 11 over Yoshida et al. *In re* Ratti, 270 F.2d. 810, 123 USPQ 349 (CCPA 1959).

Applicants further submit that even if powder were to be reformed into a ribbon, as proposed by the Examiner, the resulting ribbon would not have the properties required for use in the filter of Yoshida et al. In particular, it is submitted that one of ordinary skill in the art would recognize that a compacted powder, such as that employed by Yoshida et al., relies on the presence of microscopic gaps between the individual magnetic powder particles, which are at least partially separated by insulating material. Those gaps, which collectively operate as a distributed gap, are required for the Yoshida et al. core to exhibit the required properties, especially permeability. Thus, the Yoshida et al. core, if modified in the manner proposed by the Examiner, would be inoperative for its intended purpose, thereby negating any *prima facie* obviousness of the invention recited by claims 1, 4-5, 7-8, and 11 over Yoshida et al. *In re* Gordon, 733 F.2d. 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Accordingly, reconsideration of the rejection of claims 1, 4, 5, 7, 8, and 11 under 35 USC 103(a) as being obvious over Yoshida et al. is respectfully requested.

In view of the remarks set forth above, it is submitted that the present application is in allowable condition. Entry of the present amendment, reconsideration of the rejection of present claims 1, 4, 5, 7, 8, and 11, and their allowance, are earnestly solicited.

Respectfully submitted,

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